IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) An optical sensor comprising:

a substrate having an opening;

a cantilevered micro-mechanical waveguide having a first portion supported by the substrate and a second portion suspended over the opening in the substrate; and

a receiving structure positioned to receive light transmitted from an end of the second portion of the cantilevered micro-mechanical waveguide.

2. (Currently Amended) The optical sensor of claim 1 wherein the receiving structure comprises a waveguide having an end facing the light transmitting end of the second portion of the cantilevered micro-mechanical waveguide.

3. (Currently Amended) The optical sensor of claim 1 wherein the receiving structure comprises a reflector facing the light transmitting end of the second portion of the cantilevered micro-mechanical waveguide.

4. (Currently Amended) The optical sensor of claim 3 wherein the reflector is supported by the substrate and reflects light back into the light transmitting end of the second portion of the cantilevered micro-mechanical waveguide.

5. (Currently Amended) The optical sensor of claim 1 and further comprising an optical fiber that supplies light to the cantilevered micro-mechanical waveguide.

6. (Currently Amended) The optical sensor of claim 5 wherein the cantilevered micro-mechanical waveguide comprises a nano-taper at a second end of the micro-mechanical waveguide that contacts a light emitting end of the optical fiber.

7. (Currently Amended) The optical sensor of claim 1 wherein the cantilever micro-mechanical waveguide comprises a selectively receptive substance attached to the second portion of the cantilever micro-mechanical waveguide a desired distance from the light transmitting end of the second portion of the cantilevered micro-mechanical waveguide.

8. (Currently Amended) The optical sensor of claim 7 wherein the cantilever micro-mechanical waveguide has a resonant frequency of oscillation that changes when something attaches to the selectively receptive substance.

9. (Original) The optical sensor of claim 8 wherein the selectively receptive substance is bio-receptive.

10. (Currently Amended) The optical sensor of claim 1 and further comprising a stress layer formed on the cantilevered micro-mechanical waveguide.

11. (Original) The optical sensor of claim 10 wherein the stress layer comprises silicon nitride.

12. (Original) An optical sensor comprising:

a substrate having an opening;

a cantilevered waveguide having a first portion supported by the substrate and a second portion suspended over the opening in the substrate;

means for receiving light transmitted from an end of the second portion of the cantilevered waveguide; and

means for actuating the cantilevered waveguide.

13. (Original) The optical sensor of claim 12 wherein the means for actuating comprises a piezoactuator.

14. (Original) The optical sensor of claim 13 wherein the piezoactuator is positioned below the substrate.

15. (Original) The optical sensor of claim 12 wherein the means for actuating increases sensitivity of the cantilevered waveguide without significantly degrading a quality factor.

16. (Original) The optical sensor of claim 12 wherein the means for actuating comprises an electrostatic actuator.

17. (Original) An optical sensor comprising:

a substrate having an opening;

a supply waveguide;

multiple cantilevered waveguides having first portions supported by the substrate and second portions suspended over the opening in the substrate;

multiple corresponding receiving structures positioned to receive light transmitted from the ends of the second portion of the cantilevered waveguides; and

multiple ring resonators optically coupled between the cantilever waveguides and the supply waveguide.

18. (Previously Presented) The optical sensor of claim 17 wherein multiple ring resonators couple light of different wavelengths between the cantilever waveguides and the supply waveguide.

19. (Original) The optical sensor of claim 17 wherein the cantilevered waveguides have different resonant frequencies.

20. (Original) The optical sensor of claim 17 wherein the receiving structures comprise reflectors.

21. (Original) The optical sensor of claim 17 wherein the receiving structures comprise waveguides.

22. (Original) The optical sensor of claim 17 and further comprising:

a receiving waveguide;

multiple ring resonators optically coupled to the receiving structures and the receiving waveguide, wherein such multiple ring resonators are tuned to corresponding ring resonators optically coupled between the cantilever waveguides and the supply waveguide.

23. (Original) The optical sensor of claim 22 wherein the multiple ring resonators are tuned to desired wavelengths.

24. (Original) The optical sensor of claim 17 wherein the second portions of the cantilever waveguides are of different length.

25. (Original) The optical sensor of claim 17 and further comprising a stress layer formed on at least one of the cantilevered waveguides.

26. (Original) An optical sensor comprising:

a substrate having an opening;

a supply waveguide;

multiple cantilevered waveguides having first portions supported by the substrate and second portions suspended over the opening in the substrate;

means for receiving light transmitted from the end of the second portion of the cantilevered waveguides;

multiple ring resonators optically coupled between the cantilever waveguides and the supply waveguide; and

means for actuating the cantilevered waveguides.

27. (Previously Presented) A method comprising:

forming a selectively receptive site on a suspended end of a cantilever waveguide;
supplying light to the cantilever waveguide; and
measuring light modulated by motion of the cantilever waveguide.

28. (Previously Presented) The method of claim 27 wherein the receptive site is bioreceptive.

29. (Original) The method of claim 28 and further comprising actuating the cantilever waveguide.

30. (Currently Amended) A method of sensing vibration, the method comprising:
supplying light to a cantilever micro-mechanical waveguide;
coupling the cantilever micro-mechanical waveguide to a vibrating surface; and
measuring light modulated by motion of the cantilever micro-mechanical waveguide.